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Tetra Tech EM Inc.
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27 Jun 02

Mr. Bradley Benning
On-Scene Coordinator
Emergency Response Branch
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507

Subject: **Site Assessment Report**
R. Lavin Site
North Chicago, Lake County, Illinois
Technical Direction Document No. S05-0205-004
Tetra Tech Contract No. 68-W-00-129

Dear Mr. Benning:

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) is submitting the enclosed site assessment report for the R. Lavin site in North Chicago, Lake County, Illinois. If you have any questions or comments regarding the report or need additional copies, please contact me at (312) 946-6482 or Thomas Kouris at (312) 946-6431.

Sincerely,

for Jodi McCarty
Tetra Tech START Project Manager

Enclosure

cc: Lorraine Kosik, U.S. EPA START Project Officer
Thomas Kouris, Tetra Tech START Program Manager

SITE ASSESSMENT REPORT
R. LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 5 Emergency Response Branch
77 West Jackson Boulevard
Chicago, IL 60604

Date Prepared:	27 Jun 02
TDD No.:	S05-0205-004
Contract No.:	68-W-00-129
Prepared by:	Tetra Tech EM Inc.
Tetra Tech START Project Manager:	Jodi McCarty
Telephone No.:	(312) 946-6482
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Telephone No.:	(312) 353-7613

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FIGURES

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1.0 INTRODUCTION

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (U.S. EPA) to perform a site assessment for the R. Lavin site in North Chicago, Lake County, Illinois, under Technical Direction Document (TDD) No. S05-0205-004. Specifically, START was assigned to compile available site information, develop a site safety plan, develop a field sampling plan, perform a site reconnaissance, collect site samples, procure an analytical laboratory, provide photographic documentation of site conditions, provide a written log documenting all on-site activities, evaluate potential threats to human health and the environment posed by the site, and prepare this site assessment report.

The site assessment was performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Title 40 of the *Code of Federal Regulations* (CFR), Section 300.415(b)(2), to evaluate site conditions and possible threats to human health, public welfare, and the environment. This report discusses site background information, site assessment activities, sample analytical results, and potential site-related threats and includes a summary of the assessment. In addition, Appendix A contains a photographic log of site features, Appendix B contains a data validation report and validated analytical results for site samples collected by START, and Appendix C contains a list of witnesses for the site assessment.

2.0 SITE BACKGROUND

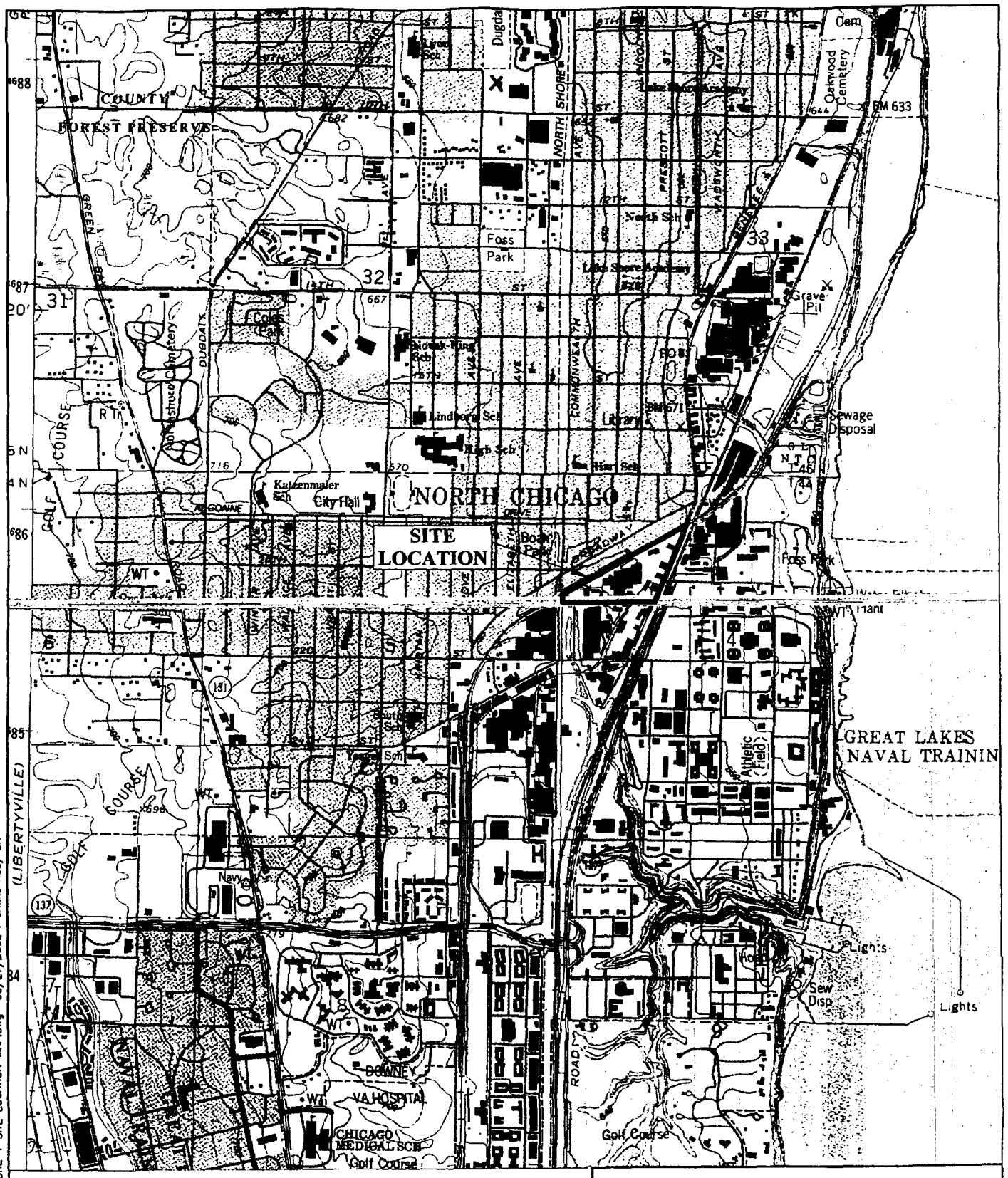
This section provides information regarding the description and history of the R. Lavin site.

2.1 SITE DESCRIPTION

The R. Lavin site is located at 2028 Sheridan Road in North Chicago, Lake County, Illinois. The site occupies approximately 17.5 acres of industrial property. The site lies in the northwest quarter of Section 4, Township 44 North, Range 12 East (see Figure 1). The site property is bordered by Sheridan Road to the east, residential and industrial areas to the south and west, and by railroad tracks to the north. Pettibone Creek lies to the west of the site.

R. Lavin Site, North Chicago, Illinois

The R. Lavin site contains three aboveground storage tanks (AST), two retention ditches, slag stockpiles, numerous baghouses, and a Water Pollution Control Filtration Plant. Numerous buildings, miscellaneous debris, and 55-gallon drums are also present on site. Figure 2 provides a site overview.



SOURCE: MODIFIED FROM USGS, WAUKEGAN, ILLINOIS, QUADRANGLE, 1993

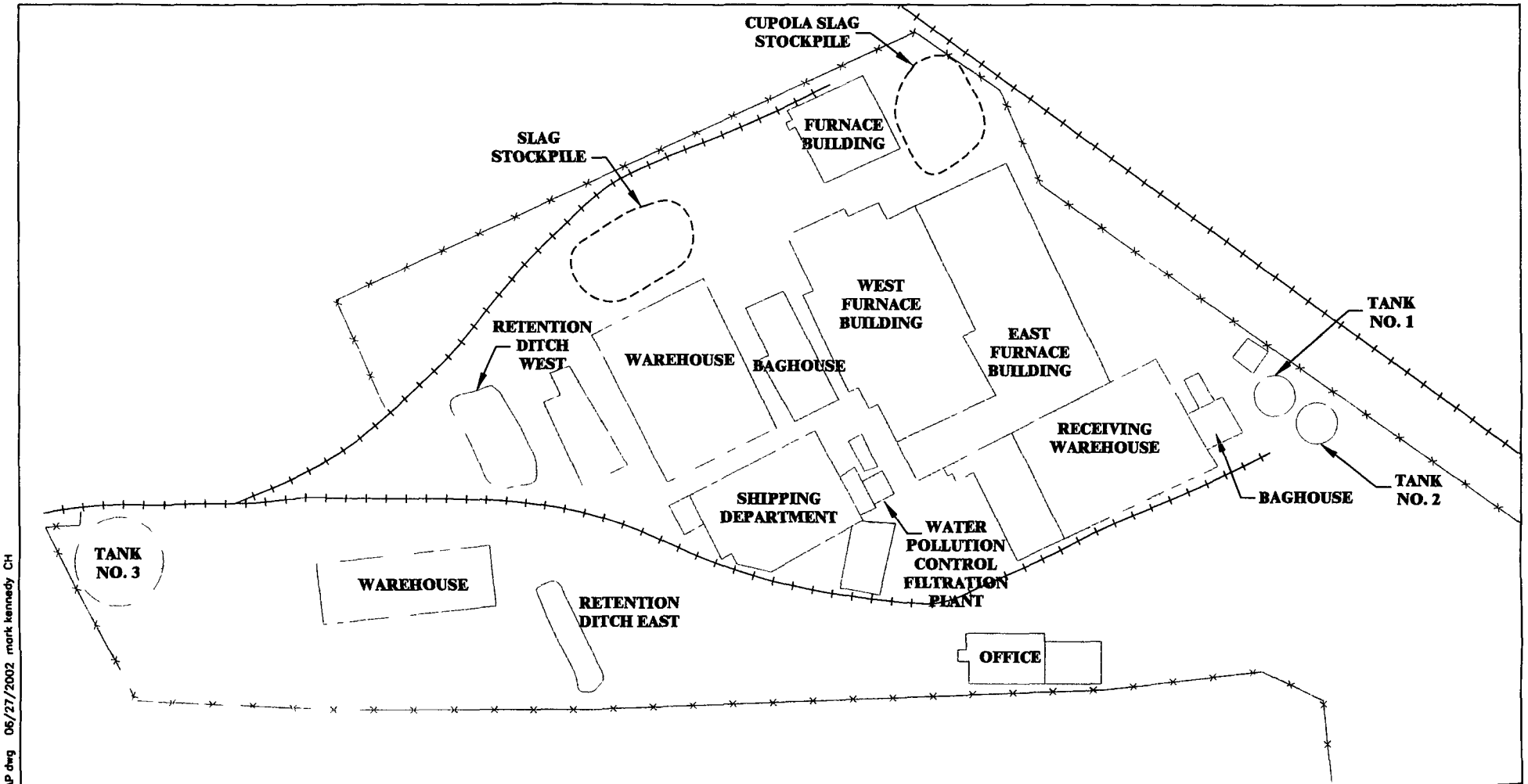
R. LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS
TDD NO. S05-0205-004

FIGURE 1

SITE LOCATION MAP

Tetra Tech EM Inc.

G:\O\9009\L0205004-R. Lavin\ FIGURE 1 SITE LOCATION MAP.dwg 06/27/2002 rk.kennedy CH



LEGEND

- BUILDING
- ROAD
- FENCE
- RAILROAD TRACKS
- SLAG STOCKPILE

NOT TO SCALE

R LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS
TDD NO S05-0205-004

FIGURE 2

SITE LAYOUT MAP

Tetra Tech EM Inc.

G:\G\9009\L0205004-R Lavin\ FIGURE 2 SITE LAYOUT MAP.dwg 06/27/2002 mark kennedy CH

2.2 SITE HISTORY

In the late 19th century, the area south of the Elgin, Joliet, and Eastern Railroad tracks, west of South Sheridan Road, north of 22nd Street, and east of Pettibone Creek belonged to the Lanyon Zinc and Paint Company. Sometime before 1921, the area was subdivided. The Vulcan Louisville Smelting Company, which was a smelting operation, occupied much of the property now owned by R. Lavin. The property then included the 6.4-acre tract of land that has been the focus of U.S. EPA activities. The property was subdivided into three parcels just before World War II. Fansteel bought the south parcel to build a plant to manufacture Tantalum. The parcel to the west remains undeveloped and is held by the Northern Trust Bank in Lake Forest, Illinois. R. Lavin bought the remaining parcel in the early 1940s.

The R. Lavin site was used for secondary smelting and refining of nonferrous metals. Site operations included processing pure copper, zinc, tin, and babbitt and recycling of brass, bronze, and scrap copper. Process operations included recycling and reusing water for direct ingot cooling; use of smoke spray towers, flue trail dumpers, press heat exchanges, zinc die-cast molds, and cupola water jackets; and cupola slag granulation.

In 1983 a storm water pollutant loads report was prepared by the Northeastern Illinois Planning Commission. The report stated that about 784 acres of land upstream of the R. Lavin outfall at Sheridan Road drains to Pettibone Creek.

Two studies conducted by the U.S. Navy in 1988 and 1989 revealed that sediment in the inner harbor area of the Great Lakes Naval Training Center near the site contained extremely high concentrations of lead, copper, and zinc.

The BOW Planning Section performed a water quality study of the Great Lakes Naval Training Center on 06 Jun 90. The study revealed adverse effects on water quality, especially in the sediment, resulting from the discharges from the R. Lavin site.

On 12 Oct 90, a consent order between R. Lavin and the State of Illinois was approved. The consent order requirements included additional monitoring and studies including biomonitoring and a boron study, the construction of a storm water retention and interim, and development of National Pollutant

Discharge Elimination System (NPDES) permit final limits for the site. On 20 Dec 90, a draft renewed NPDES permit was put on public notice. R. Lavin filed a permit appeal to the Illinois Pollution Control Board; however, R. Lavin had not met any of the final compliance dates set in the consent order, including the date for construction of the treatment system.

Reports issued on 20 Apr 92 stated that the R. Lavin site had exceeded Title 35 *Illinois Administrative Code* water quality limits, including those for arsenic, copper, mercury, and lead.

On 14 Sep 92, a screening site inspection (SSI) of Pettibone Creek was conducted by the Remedial Project Management Section of the Illinois Environmental Protection Agency (IEPA) Bureau of Land. The SSI report confirmed that heavy metal contamination existed both on and off the R. Lavin site and in Pettibone Creek.

In Apr 94, a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) expanded site inspection (ESU) that included extensive sediment sampling was performed on Pettibone Creek. The ESI sample analytical results showed that the R. Lavin site was the primary source of copper, lead, and zinc found in Pettibone Creek sediment. The ESI results also indicated that the site was an apparent source of beryllium, chromium, iron, manganese, and nickel contamination in Pettibone Creek sediment.

In Dec 98, R. Lavin discharged approximately 10,000 gallons of process water from an outfall located in the northern portion of the site, due to a major power failure, which resulted in a process water pump outage. On 12 Jan 99, a violation notice was sent to R. Lavin by the IEPA. The notice cited violations of the consent order associated with full storm water ditches that provided inadequate storage capacity. Based on R. Lavin's response to the notice, a compliance commitment acceptance letter was sent to R. Lavin on 16 Apr 99 by the IEPA. The letter included a compliance schedule that required construction of a concrete berm around the portion of the site where the concrete slag is stored and installation of a backup generator in the furnace building. In addition, the R. Lavin site was required to construct a shelter with an electric heater for the storm water ditch pump. Past inspections had revealed that the storm water ditches were full even in periods of dry weather, a violation of both the consent order and the NPDES permit. Subsequent inspections have shown that all the objectives in the compliance schedule requirements have been implemented.

Currently, the on-site facility is bankrupt; the date when it filed for bankruptcy is unknown at this time. Owners of the R. Lavin site would like to auction off the three ASTs; however, the ASTs are 50 to 80 percent full of process waters. The ASTs have been sampled by K Plus Environmental, Inc., an environmental firm retained by the R. Lavin site. Sample analytical results included low concentrations of barium, cadmium, copper, lead, molybdenum, selenium, and zinc. No volatile organic compounds were detected in any of the tank samples. Contaminants of concern at the site include cadmium, chromium, beryllium, boron, copper, lead, nickel, and zinc.

3.0 SITE ASSESSMENT ACTIVITIES

Site assessment activities included a site reconnaissance and sampling. Each activity is discussed below. The discussion cites photographs of site features taken on 15 May 02 (see Appendix A).

3.1 SITE RECONNAISSANCE

At about 0900 on 15 May 02, START members Jodi McCarty (of Tetra Tech) and Stephanie Wenning (of TN and Associates, a Tetra Tech subcontractor) and U.S. EPA On-Scene Coordinator (OSC) Bradley Benning arrived at the R. Lavin site located at 2028 Sheridan Road in North Chicago, Lake County, Illinois (see Photographs No. 1 and 2). Daniel Caplice of K-Plus Consulting was also present on behalf of R. Lavin. After a discussion of the site history with all parties present, U.S. EPA and START conducted a walking reconnaissance of the site.

START observed the following areas of interest (AOI) at the site.

Aboveground Storage Tanks. START observed two 350,000-gallon capacity (Tanks No. 1 and 2) in the northern portion of the site (see Photograph No. 3). Tank No. 1 was located to the northwest, and Tank No. 2 was located to the northeast. The ASTs were approximately 25 feet high and 50 feet in diameter. The ASTs were connected by a catwalk, and stairs led up to the catwalk. Both ASTs were approximately 50 percent full of process waters. Each AST also contained approximately 2 to 3 feet of sludge at the bottom. Both ASTs were open at the top.

START also observed a 2-million gallon AST (Tank No. 3) in the southern portion of the site (see Photograph No. 4). The AST was approximately 30 feet high and 100 feet in diameter and was approximately 85 percent full of process waters (see Photograph No. 5). The AST also contained a layer of sludge at the bottom; however, an exact thickness of this layer could not be determined. The AST was also open at the top.

Retention Ditches. START observed two retention ditches at the site. The western retention ditch was approximately 30 feet long, 20 feet wide, and 2 to 4 feet deep and was filled with water (see Photograph No. 6). The eastern retention ditch was approximately 50 feet long, 10 feet wide, and 2 to 3 feet deep

and was also filled with water (see Photograph No. 7). An outlet was observed at the eastern end of the eastern retention ditch. START observed a sheen on the water in the eastern retention ditch.

Slag Stockpiles. Various stockpiles of slag were observed at the site. Approximately eight piles of slag were located in the western and southwestern portion of the site. The piles were separated by wooden dividers and contained slag of various sizes. Also, the northwestern portion of the site contained cupola slag stockpiles (see Photograph No. 8).

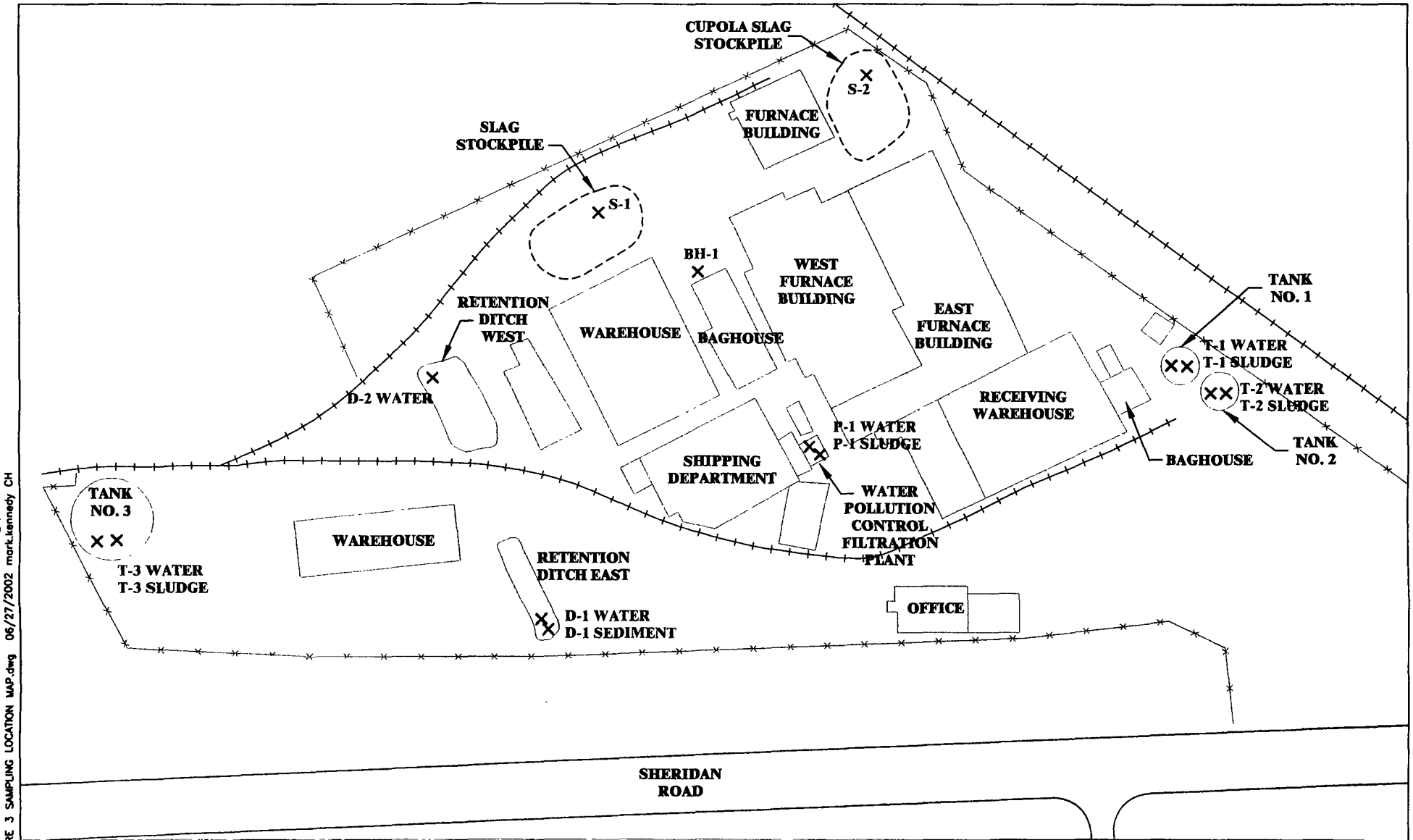
Baghouses. Numerous baghouses were observed at the site. Most of the baghouses contained baghouse dust. START also observed baghouse dust on the ground beneath the baghouses.

Water Pollution Control Filtration Plant. The Water Pollution Control Filtration Plant is located in the central portion of the site. A recirculated water reservoir (pit) was observed beneath the plant. The pit was approximately 20 feet long, 10 feet wide, and 4 feet deep. The pit was filled with water and had a 1- to 2-foot layer of sludge at the bottom.

Numerous buildings are present at the R. Lavin site. START observed the various buildings to be in good condition. Miscellaneous pieces of old machinery and metal pieces were scattered throughout the site as well as 55-gallon drums. The site was fenced.

3.2 SAMPLING ACTIVITIES

To evaluate whether the R. Lavin site posed a threat to human health or the environment, START collected samples from ASTs, retention ditches, slag stockpiles, a baghouse, and the pit below the Water Pollution Control Filtration Plant on 15 May 02. Specifically, START collected three AST water samples, three AST sludge samples, two retention ditch water samples, one retention ditch sediment sample, two slag stockpile solid samples, one baghouse solid sample, one pit water sample, and one pit sludge sample. Sampling locations are shown in Figure 3. START collected the samples under the direction of OSC Benning. The AST, retention ditch, and other sampling activities are detailed below.



LEGEND

- BUILDING
- ROAD
- FENCE
- RAILROAD TRACKS
- SLAG STOCKPILE
- × SAMPLE LOCATION
- T-3 WATER / T-3 SLUDGE SAMPLE ID

NOT TO SCALE

R. LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS
TDD NO. S05-0205-004

FIGURE 3

SAMPLING LOCATION MAP

Tetra Tech EM Inc.

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G:\G\9009\L0205004-R. Lavin\ FIGURE 3 SAMPLING LOCATION MAP.dwg 06/27/2002 mark.kennedy CH

3.2.1 Aboveground Storage Tank Sampling

START sampled the three open top ASTs located at the site. Sampling was performed in Level D personal protective equipment. OSC Benning determined the number of samples to be collected from each AST based on the amount of water in the AST. A total of three AST water samples and three AST sludge samples were collected and submitted for analysis. The samples were labeled using numbers assigned by START.

Water sample T-1 Water was clear liquid collected from Tank No. 1, a 350,000-gallon AST. A Kemmerer sampler was used to collect the water from the AST. The sample was collected approximately 10 feet below the water's surface. No water odor or sheen was noted. Sludge sample T-1 Sludge was also collected from Tank No. 1. An Eckman Bottom Dredge was used to collect the sludge sample (see Photograph No. 9). The sample was collected approximately 20 feet below the water's surface. No sludge odor or sheen was noted.

Water sample T-2 Water was clear liquid collected from Tank No. 2, the second 350,000-gallon AST. A Kemmerer sampler was used to collect the water from the AST. The sample was collected from approximately 10 feet below the water's surface. No water odor or sheen was noted. Sludge sample T-2 Sludge was also collected from Tank No. 2. An Eckman Bottom Dredge was used to collect the sludge sample. The sample was collected approximately 20 feet below the water's surface. No sludge odor or sheen was noted.

Water sample T-3 Water was clear liquid collected from Tank No. 3, the 2 million-gallon AST in the southern portion of the site. A Kemmerer sampler was used to collect the water from the AST. The sample was collected approximately 10 feet below the water's surface. START noted a slight odor from the water; however, no sheen was observed. Sludge sample T-3 Sludge was also collected from Tank No. 3. An Eckman Bottom Dredge was used to collect the sludge sample. The sample was collected approximately 20 feet below the water's surface. START noted an odor from the sludge; however, no sheen was observed.

3.2.2 Retention Ditch Sampling

START sampled the two retention ditches located at the site. Sampling was performed in Level D personal protective equipment. OSC Benning determined the number of samples to be collected and the sampling locations based on visual observations and ditch accessibility. A total of two retention ditch water samples and one retention ditch sediment sample were submitted for analysis. The samples were labeled using numbers assigned by START.

Water sample D-1 Water was clear liquid collected from the eastern retention ditch. A disposable bailer was used to collect the water sample near the outfall of the ditch. The sample was collected between 1 and 3 feet below the water's surface. A sheen was observed on the water. Sediment sample D-1 Sediment was also collected from the eastern retention ditch. An Eckman Bottom Dredge was used to collect the sediment sample. The sample was collected approximately 3 to 4 feet below the water's surface. START noted that the sediment had both an odor and a sheen.

Water sample D-2 Water was clear liquid collected from the western retention ditch. A disposable bailer was used to collect the water sample approximately 5 feet from the edge of the ditch. The sample was collected from the water's surface. No water odor or sheen was noted. Because of lack of accessibility, no sediment sample was collected from the western retention ditch.

3.2.3 Miscellaneous Sampling

START sampled other items located throughout the site. Sampling was performed in Level D personal protective equipment. OSC Benning determined which items would be sampled based on any labels or other evidence indicating that a hazardous material was or might have been present in an item. Two slag stockpiles, one baghouse, and one pit were sampled. The samples were labeled using numbers assigned by START.

Solid sample S-1 was a composite sample collected from approximately eight stockpiles of slag in the western portion of the site (see Photograph No. 10). A trowel was used to collect the composite sample. The slag was placed in a disposable, aluminum pie pan. Once a sample had been collected from each of

the eight stockpiles and placed in the pie pan, the slag in the pan was mixed thoroughly and placed in clean, glass jars.

Solid sample S-2 was a composite sample collected from approximately six areas of a large cupola slag stockpile in the northwestern portion of the site (see Photograph No. 11). A trowel was used to collect the composite sample. The cupola slag was placed in a disposable, aluminum pie pan. Once a sample had been collected from each area and placed in the pie pan, the cupola slag in the pan was mixed thoroughly and placed in clean, glass jars.

Solid sample BH-1 was a fine, gray-colored, solid material collected from baghouse dust beneath a baghouse in the central portion of the site (see Photograph No. 12). A trowel was used to collect the sample. The gray-colored solid was placed directly into clean, glass jars.

Water sample P-1 Water was clear liquid collected from the pit beneath the Water Pollution Control Filtration Plant. A Kemmerer sampler was used to collect the sample. The sample was collected between 2 to 3 feet below the water's surface. No water sheen or odor was noted. Sludge sample P-1 Sludge was also collected from the pit. An Eckman Bottom Dredge was used to collect the sludge sample. The sample was collected approximately 3 to 4 feet below the water's surface. No sludge odor or sheen was noted.

4.0 ANALYTICAL RESULTS

START obtained laboratory analytical results for the three AST water samples, three AST sludge samples, two retention ditch water samples, one retention ditch sediment sample, two slag stockpile solid samples, one baghouse solid sample, one pit water sample, and one pit sludge sample collected at the R. Lavin site. The samples were analyzed by PDC Laboratories, Inc., in Peoria, Illinois, under analytical TDD No. S05-0205-006. Analytical parameters were chosen based on the criteria for identification of hazardous waste set forth in 40 CFR Part 261. The analytical results for the water samples are summarized in Table 1, and the analytical results for the solid samples are summarized in Table 2. Sample analytical parameters and significant analytical results are discussed below.

AST samples T-1 Water, T-2 Water, and T-3 Water were analyzed for total Resource Conservation and Recovery Act (RCRA) metals and for total beryllium, total boron, total cobalt, total manganese, total nickel, and total zinc. AST samples T-1 Sludge, T-2 Sludge, and T-3 Sludge were analyzed for total RCRA metals, toxicity characteristic leaching procedure (TCLP) RCRA metals, total beryllium, total boron, total copper, total manganese, total nickel, and total zinc. Retention ditch samples D-1 Water and D-2 Water were analyzed for total RCRA metals and for total beryllium, total boron, total cobalt, total manganese, total nickel, and total zinc. Retention ditch sample D-1 Sediment was analyzed for total RCRA metals, TCLP RCRA metals, total beryllium, total boron, total copper, total manganese, total nickel, and total zinc. Water filtration pit sample P-1 Water was analyzed for total RCRA metals and for total beryllium, total boron, total copper, total manganese, total nickel, and total zinc. Water filtration pit sample P-1 Sludge was analyzed for total RCRA metals, TCLP RCRA metals, total beryllium, total boron, total copper, total manganese, total nickel, and total zinc. Slag stockpile sample S-1 and S-2 were analyzed for total RCRA metals, TCLP RCRA metals, total beryllium, total boron, total copper, total manganese, total nickel, and total zinc. Baghouse sample BH-1 was analyzed for total RCRA metals, TCLP RCRA metals, total beryllium, total boron, total copper, total manganese, total nickel, and total zinc.

AST samples T-1 Water, T-2 Water, and T-3 Water all contained various concentrations of barium, boron, copper, lead, manganese, mercury, nickel, selenium, and zinc. Samples T-1 Water and T-2 Water also contained concentrations of cadmium. However, none of the metal concentrations were greater than or equal to established screening levels.

TABLE 1

SUMMARY OF WATER SAMPLE ANALYTICAL RESULTS
R. LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS

Analytical Parameter	Screening Level[a]	Sample No.						
		T-1 Water	T-2 Water	T-3 Water	D-1 Water	D-2 Water	P-1 Water	P-1 Dup
Total Inorganics (mg/L)								
Arsenic	5.0	0.0014U	0.0014U	0.0014U	0.0055J	0.0084J	0.0014U	0.0014U
Barium	100.0	0.0742	0.0877	0.0349	0.0182	0.0214	0.0673	0.068
Beryllium	NE	0.00038U	0.00038U	0.00038U	0.00038U	0.00038U	0.00038U	0.00038U
Boron	NE	8.93	10.5	7.480	3.340	5.410	8.73	8.77
Cadmium	1.0	0.0078	0.0086	0.0098U	0.0031	0.0023	0.007	0.0072
Chromium	5.0	0.00056U	0.00056U	0.00056U	0.0072	0.0159	0.00056U	0.00056U
Copper	NE	0.236	0.105	0.0291	0.406	0.704	0.088	0.0894
Lead	5.0	0.0697	0.0758	0.0146	0.105	0.248	0.0857	0.0841
Manganese	NE	0.0713	0.0843	0.0065J	0.0269	0.0332	0.0473	0.0468
Mercury	0.2	0.000062J	0.00011J	0.000077J	0.000055U	0.000083J	0.000055U	0.000055U
Nickel	NE	0.0239	0.0128	0.0058J	0.0047J	0.0074J	0.0087J	0.0088J
Selenium	1.0	0.0147	0.0165	0.0397	0.0294	0.0538	0.0171	0.018
Silver	5.0	0.0012U	0.0012U	0.0012U	0.0012U	0.0012U	0.0012U	0.0012U
Zinc	NE	0.907	0.958	0.119	1.150	1.360	0.470	0.468

Notes:

D = Retention ditch sample
Dup = Duplicate
J = Analyte was detected; result is an estimated value
mg/L = Milligram per liter
NE = Not established
P = Water filtration pit sample
T = Aboveground storage tank sample
U = Analyte was not detected at or above the laboratory reporting limit

[a] Sample analytical results were compared to toxicity characteristic leaching procedure regulatory levels presented in Title 40 *Code of Federal Regulations* Section 261.24.

Source: PDC Laboratories, Inc., in Peoria, Illinois, under analytical Technical Direction Document No. S05-0205-006

TABLE 2

SUMMARY OF SOLID SAMPLE ANALYTICAL RESULTS
R. LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS

Analytical Parameter	Screening Levels[a]		Sample No.								
			T-1 Sludge	T-2 Sludge	T-3 Sludge	D-1 Sediment	P-1 Sludge	P-1 Dup	S-1	S-2	BH-1
Total Inorganics (mg/kg)	**PRG-Residential**	**PRG-Industrial**									
Arsenic	0.39	2.7	5.7U	**5.2J**	**18.7J**	**26.8**	**15.4**	**17.5J**	**3.6J**	**3.5J**	1.8U
Barium	5,400	100,000	170	118	229	140	132	165	53.0	212	22.2
Beryllium	150	2,200	50.6	89.1	3.1U	2.5	22.7	17.8	21.2	134	14.6
Boron	5,500	79,000	76	356	168	123	313	277	83.4	540	90.2
Cadmium	37	810	**191**	**105**	**191**	**72.2**	**421**	**751**	15.1	10.7	**107**
Chromium	210	450	115	93.4	125	**515**	128	**269**	**234**	138	73.1
Copper	2,900	76,000	**19,600**	**12,800**	**7,840**	**13,700**	**20,700**	**23,000**	**157,000**	**16,600**	**13,700**
Lead	400	750	**15,300**	**9,310**	**6,340**	**7,110**	**13,400**	**18,700**	**4,190**	**2,840**	**14,600**
Manganese	1,800	32,000	**4,250**	**4,610**	1,140	700	**2,440**	**2,710**	**2,830**	**7,520**	433
Mercury	23	610	0.77	0.33	1.4	1.2	1.4	1.9	0.057	0.0091U	0.87
Nickel	1,600	41,000	456	341	164	222	439	503	**2,680**	539	80.5
Selenium	390	10,000	32.0	23.4	308	62.3	42.9	118	19.7	8.2	26.6
Silver	390	10,000	11.4J	9.3	9.9U	11.3J	6.7J	18.1J	14.4	1.6J	10.1
Zinc	23,000	100,000	**152,000**	**134,000**	**49,000**	**54,500**	**101,000**	**121,000**	**69,400**	**91,600**	**605,000**
TCLP Inorganics (mg/L)	**TCLP Regulatory Level**										
Arsenic	5.0		0.0072U	0.0072U	0.0229	0.0115J	0.0072U	0.0072U	0.0072U	0.0076U	0.0072U
Barium	100.0		1.43	1.05J	2.15	1.13	1.28	1.47	0.504J	1.63	0.156J
Cadmium	1.0		**2.98**	**1.69**	0.484	0.0994	**6.57**	**6.72**	0.170	0.0176	0.742
Chromium	5.0		0.0028U	0.011	0.0419	0.0028U	0.032	0.0293	0.0028U	0.004J	0.0028U
Lead	5.0		**108**	**76.9**	**19.1**	**11.2**	**97.7**	**110**	**11.2**	0.852	**79.4**
Mercury	0.2		0.0001U	0.000079U	0.000076U	0.000055U	0.000097U	0.000087U	0.000055U	0.000055U	0.0031
Selenium	1.0		0.055U	0.055U	0.055U	0.0164U	0.055U	0.055U	0.0717	0.0164U	0.0513J
Silver	5.0		0.006U	0.006U	0.006U	0.006U	0.0061J	0.006U	0.006U	0.006U	0.006U

TABLE 2 (Continued)

SUMMARY OF SOLID SAMPLE ANALYTICAL RESULTS
R. LAVIN SITE
NORTH CHICAGO, LAKE COUNTY, ILLINOIS

Notes:

BH	=	Baghouse sample	mg/kg	=	Milligram per kilogram	T	= Aboveground storage tank sample
D	=	Retention ditch sample	mg/L	=	Milligram per liter	TCLP	= Toxicity characteristic leaching procedure
Dup	=	Duplicate	P	=	Water filtration pit sample	U	= Analyte was not detected at or above the laboratory reporting limit
J	=	Analyte was detected; result is an estimated value	PRG	=	Preliminary remediation goal		
			S	=	Slag stockpile sample		

[a] Sample analytical results for total organics were compared to the U.S. Environmental Protection Agency Region 9 PRGs for both the residential and industrial scenarios. Sample analytical results for TCLP metals were compared to the TCLP regulatory levels presented in Title 40 *Code of Federal Regulations* Section 261.24

Sample analytical results presented in **bold** exceeded associated screening levels.

Source: PDC Laboratories, Inc., in Peoria, Illinois, under analytical Technical Direction Document No. S05-0205-006

Retention ditch samples D-1 Water and D-2 Water contained various concentrations of arsenic, barium, boron, cadmium, chromium, copper, lead, manganese, nickel, selenium, and zinc. Sample D-2 Water also contained a low concentration of mercury. However, none of the metal concentrations were greater than or equal to established screening levels.

Water filtration pit sample P-1 Water contained various concentrations of barium, boron, cadmium, copper, lead, manganese, nickel, selenium, and zinc. However, none of the metal concentrations were greater than or equal to established screening levels.

AST samples T-1 Sludge, T-2 Sludge, and T-3 Sludge all contained various concentrations of total and TCLP metals. Sample T-1 Sludge contained the following metals at concentrations exceeding U.S. EPA Region 9 preliminary remediation goals (PRG) for the residential scenario: cadmium (191milligrams per kilogram [mg/kg]), copper (19,600 mg/kg), lead (15,300 mg/kg), manganese (4,250 mg/kg), and zinc (152,000 mg/kg). The concentrations of lead and zinc in this sample also exceeded the PRGs for the industrial scenario. In addition, sample T-1 Sludge contained cadmium and lead concentrations (2.98 and 108 milligram per liter [mg/L], respectively) exceeding their maximum toxicity concentration TCLP regulatory levels. Sample T-2 Sludge contained concentrations of arsenic (5.2J mg/kg), cadmium (105 mg/kg), copper (12,800 mg/kg), lead (9,310), manganese (4,610 mg/kg), and zinc (134,000 mg/kg) exceeding the PRGs for the residential scenario. The concentrations of arsenic, lead, and zinc in this sample also exceeded the PRGs for the industrial scenario. In addition, sample T-2 Sludge contained cadmium and lead concentrations (1.69 and 76.9 mg/L, respectively) exceeding their maximum toxicity concentration TCLP regulatory levels. Sample T-3 Sludge contained concentrations of arsenic (18.7J mg/kg), cadmium (191 mg/kg), copper (7,840 mg/kg), lead (6,340 mg/kg), and zinc (49,000 mg/kg) exceeding the PRGs for the residential scenario. The concentrations of arsenic and lead in this sample also exceeded the PRGs for the industrial scenario. In addition, sample T-3 Sludge contained a lead concentration (19.1 mg/L) exceeding the maximum toxicity concentration TCLP regulatory level.

Retention ditch sample D-1 Sediment contained arsenic, cadmium, chromium, copper, lead, and zinc concentrations exceeding the PRGs for the residential scenario. The concentrations of arsenic, chromium, and lead in this sample also exceeded the PRGs for the industrial scenario. In addition, sample D-1 Sediment contained a lead concentration (11.2 mg/L) exceeding the maximum toxicity concentration TCLP regulatory level.

Water filtration pit sample P-1 Sludge contained arsenic, cadmium, copper, lead, manganese, and zinc concentrations exceeding the PRGs for the residential scenario. The concentrations of arsenic, lead, and zinc in this sample also exceeded the PRGs for the industrial scenario. In addition, sample P-1 Sludge contained concentrations of cadmium (6.57 mg/L) and lead (97.7 mg/L) exceeding their maximum toxicity concentration TCLP regulatory levels.

Slag stockpile samples S-1 and S-2 contained concentrations of arsenic, copper, lead, manganese, and zinc exceeding the PRGs for the residential scenario. The concentrations of arsenic and lead in these samples also exceeded the PRGs for the industrial scenario. In addition, sample S-1 contained chromium and nickel concentrations exceeding the PRGs for the residential scenario and a copper concentration exceeding the PRGs for the industrial scenario. Sample S-1 also contained a lead concentration (11.2 mg/L) exceeding the maximum toxicity concentration TCLP regulatory level.

Baghouse sample BH-1 contained concentrations of cadmium, copper, lead, and zinc exceeding the PRGs for the residential scenario. The concentrations of lead and zinc in this sample also exceeded the PRGs for the industrial scenario. In addition, the sample's lead concentration (79.4 mg/L) also exceeded the maximum toxicity concentration TCLP regulatory level.

Paragraph (b)(2) of 40 CFR Section 300.415 lists factors to be considered when determining the appropriateness of a potential removal action at a site. Those factors applicable to the R. Lavin site are summarized below.

Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances or pollutants or contaminants. START observed stockpiles of slag at the site. The stockpile samples contained concentrations of various metals, including arsenic, copper, lead, manganese, and zinc above PRG-residential screening levels. One of the stockpiles also contained elevated concentrations of chromium and nickel.

Sludge in the three ASTs and the water filtration pit was found to contain elevated concentrations of arsenic, cadmium, copper, lead, manganese, and zinc. In addition, the sediment in the eastern retention ditch contained elevated concentrations of these metals.

Baghouse materials were present on site, and some of these materials were not contained. The baghouse material sample collected contained high concentrations of cadmium, copper, lead, and zinc.

Consumption of contaminated drinking water is not an immediate concern at the R. Lavin site, but the Agency for Toxic Substances and Disease Registry (ATSDR) states that human exposure to high levels of lead has the same effects on the human body whether the exposure route is inhalation or ingestion. Lead adversely affects the central nervous system, especially in children. According to ATSDR, lead exposure also damages the kidneys and reproductive system.

According to ATSDR, breathing air containing very high levels of cadmium can severely damage the lungs and may cause death. Breathing air containing lower levels of cadmium over long periods of time (for years) results in a buildup of cadmium in the kidneys, and if sufficiently high, may result in kidney disease. Other adverse effects that may occur after breathing cadmium for a long period are lung damage and fragile bones.

ATSDR lists chromium (VI) as a known human carcinogen.

Arsenic cannot be destroyed in the environment. Inorganic arsenic has been recognized as a human poison since ancient times, and large oral doses can produce death. If lower levels of inorganic arsenic are swallowed, irritation of the stomach and intestines can occur, with symptoms such as stomach ache, nausea, vomiting, and diarrhea. Other effects include decreased production of red and white blood cells, which may cause fatigue, abnormal heart rhythm, blood vessel damage resulting in bruising, and impaired nerve function causing a "pins and needles" sensation in the hands and feet.

Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that pose a threat of release. START documented the presence of ASTs and baghouses at the R. Lavin site. All three ASTs are open at the top. Some baghouse materials are not contained and are lying beneath the baghouses on the ground surface.

Actual or potential contamination of drinking water supplies or sensitive ecosystems. Pettibone Creek is located near the site. Pettibone Creek is a tributary to the Great Lakes Naval Training Center harbor. The potential for site contaminants to migrate into the creek and the harbor has been documented in previous investigations.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate. According to meteorological data, North Chicago receives approximately 37 inches of precipitation per year. Uncontained, metal-contaminated baghouse dust is present at the site, and weather conditions such as wind and rain could cause the material to migrate off-site.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate. Sample analytical results show that both lead and cadmium concentrations exceeding TCLP regulatory levels are present soils at the site. In addition, other metals including barium, chromium, copper, and selenium, were also detected in samples collected by START. These findings indicate that site contaminants could leach through soil and migrate to groundwater and surface water.

6.0 SUMMARY

The R. Lavin site is located at 2028 Sheridan Road in North Chicago, Lake County, Illinois. The site property is bordered by residential and industrial areas to the south and west, railroad tracks to the north, and Sheridan Road to the east. During reconnaissance and sampling activities conducted at the site on 15 May 02, START identified three open-topped ASTs approximately 50 to 85 percent full of process water and sludge, as well as retention ditches, slag stockpiles, and baghouses. Analytical results for samples collected from the ASTs, the retention ditches, slag stockpiles, and a baghouse indicate the presence of leachable metals that are above PRG residential and industrial screening levels (including arsenic, chromium, copper, lead, mercury, and zinc). Additionally, weather conditions may potentially cause uncontained slag material contaminants to migrate off-site. Therefore, the site meets the criteria for a removal action outlined in 40 CFR Section 300.415(b)(2).

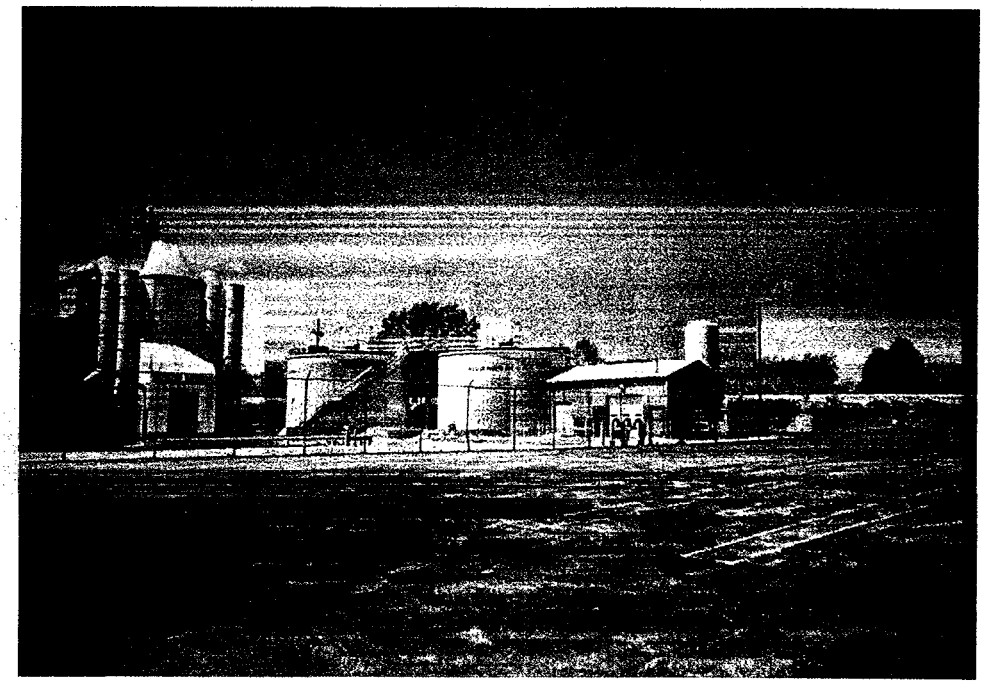
APPENDIX A

PHOTOGRAPHIC LOG

(Six Pages)

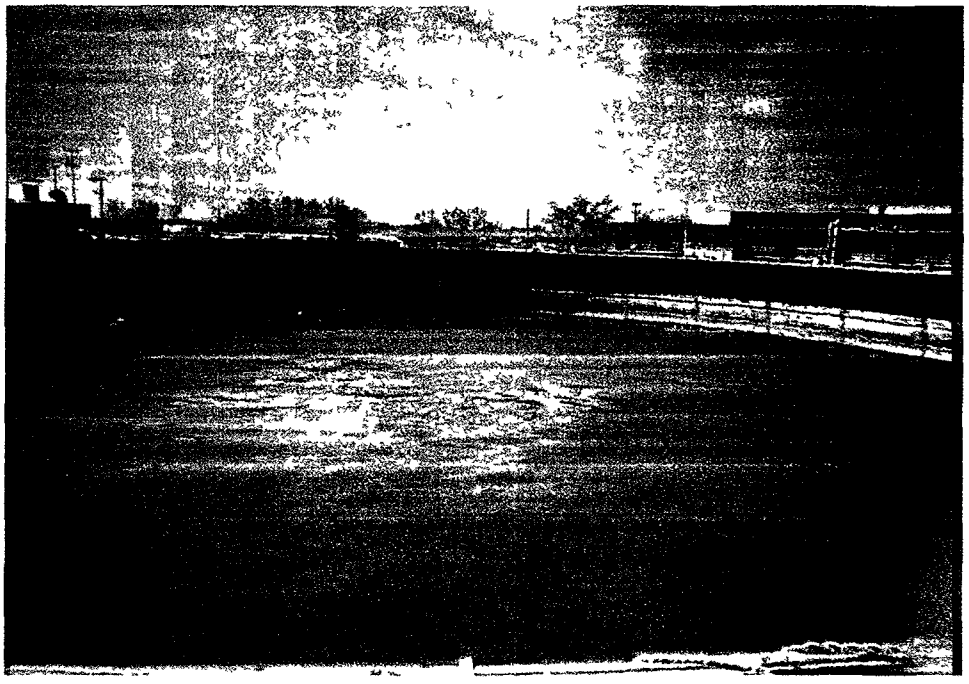
Photograph No.: 1 **Orientation:** North
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: R. Lavin site at 2028 Sheridan Road in North Chicago, Illinois

Photograph No.: 2 **Orientation:** Northwest
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: R. Lavin site at 2028 Sheridan Road in North Chicago, Illinois



Photograph No.: 3 **Orientation:** North
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: Two 350,000-gallon aboveground storage tanks (AST) at the site (Tanks No. 1 and 2 on the left and right, respectively)

Photograph No.: 4 **Orientation:** South
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: 2 million-gallon AST at the site (Tank No. 3)



Photograph No.: 5
TDD No.: S05-0205-004
Location: R. Lavin site
Subject: Contents of Tank No. 3

Orientation: South
Date: 15 May 02

Photograph No.: 6
TDD No.: S05-0205-004
Location: R. Lavin site
Subject: Western retention ditch

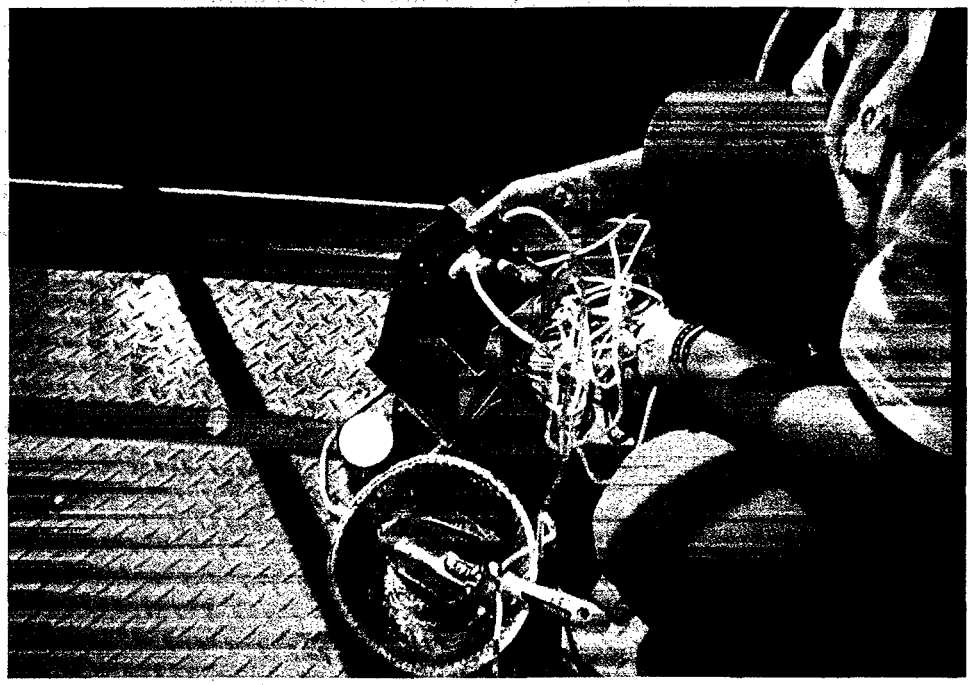
Orientation: Southwest
Date: 15 May 02

Photograph No.: 7
TDD No.: S05-0205-004
Location: R. Lavin site
Subject: Eastern retention ditch

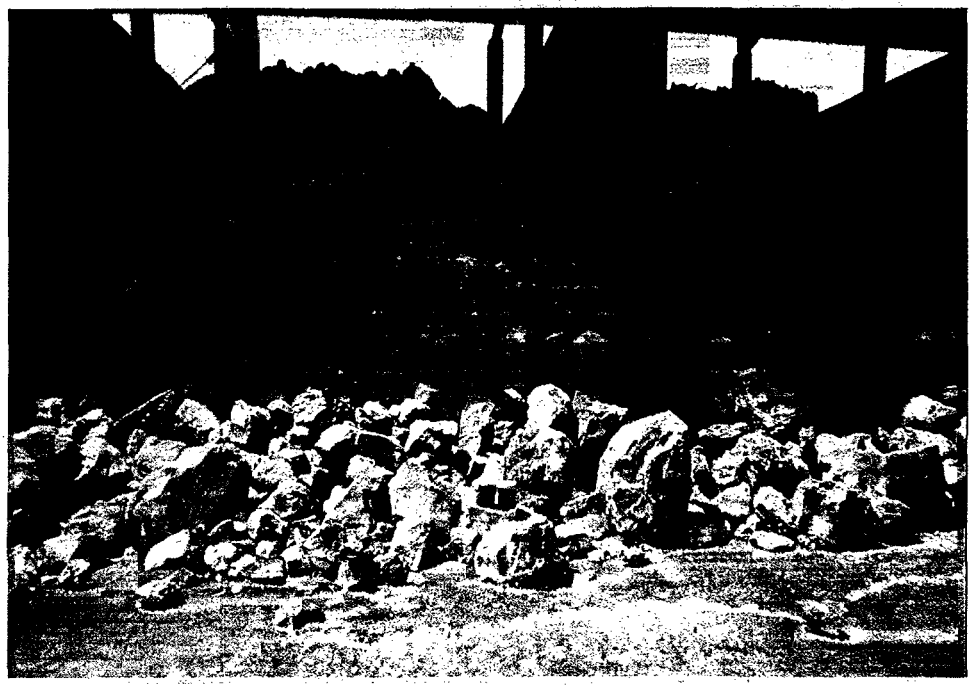
Orientation: East
Date: 15 May 02

Photograph No.: 8
TDD No.: S05-0205-004
Location: R. Lavin site
Subject: Stockpiles of cupola slag

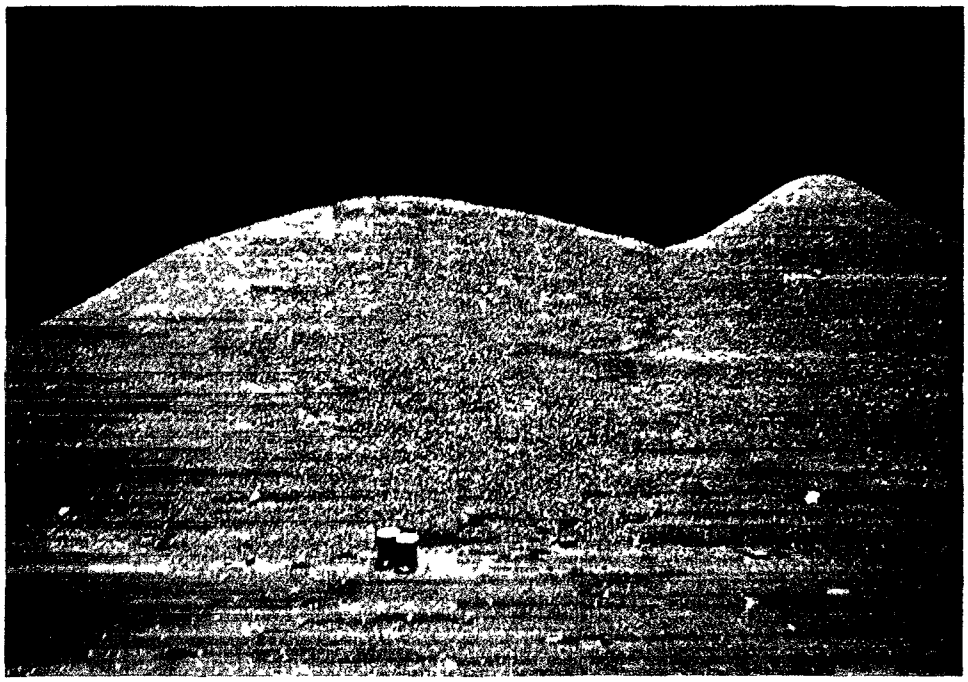
Orientation: South
Date: 15 May 02



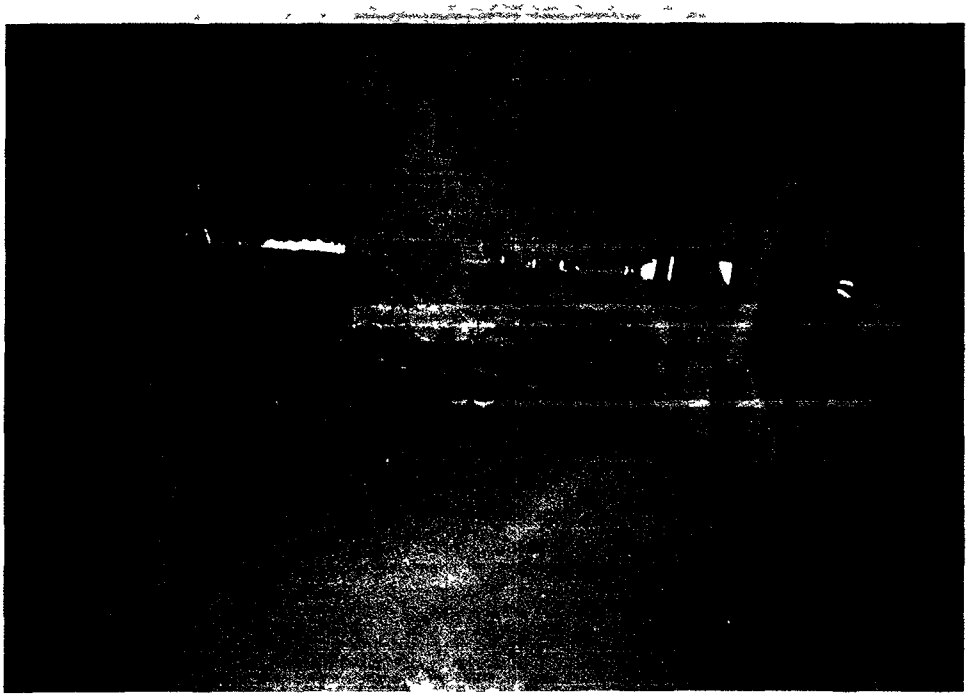
Photograph No.: 9 **Orientation:** Downward
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: Sample T-1 Sludge collected from Tank No. 1 with Eckman Bottom Dredge



Photograph No.: 10 **Orientation:** West
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: Sample S-1 collected from slag stockpiles



Photograph No.: 11 **Orientation:** East
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: Sample S-2 collected from cupola slag stockpile



Photograph No.: 12 **Orientation:** East
TDD No.: S05-0205-004 **Date:** 15 May 02
Location: R. Lavin site
Subject: Sample BH-1 collected from baghouse dust beneath baghouse

APPENDIX B

DATA VALIDATION REPORT AND VALIDATED ANALYTICAL RESULTS

(Four Pages)

MEMORANDUM

Date: 07 Jun 02

To: Jodi McCarty, Project Manager, Tetra Tech EM Inc. (Tetra Tech)
Superfund Technical Assessment and Response Team (START) for Region 5

From: Harry Ellis, Chemist, Tetra Tech START for Region 5

Subject: Data Validation for
R. Lavin Site
North Chicago, Illinois
Analytical Technical Direction Document (TDD) No. S05-0205-006
Project TDD No. S05-0205-004

Laboratory: PDC Laboratories, Inc. (PDC), Peoria, Illinois
Work Orders No. 02052505 and 02052507
Total Metals and Toxicity Characteristic Leaching Procedure (TCLP) Metals Analysis of Nine Sludge/Sediment Samples and Total Metals Analysis of Seven Water Samples

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated total and TCLP metal analytical data for nine sludge/sediment samples and total metal analytical data for seven water samples collected during site assessment activities conducted on 15 May 02 at the R. Lavin site in North Chicago, Illinois. The samples were analyzed under the above-referenced work orders by PDC using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Methods 1311 for TCLP extraction, 6010B for metal analysis, and 7470A/7471A for mercury analysis.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated Feb 94. Inorganic data validation consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, laboratory control sample (LCS) results, matrix spike/matrix spike duplicate (MS/MSD) results,

inductively coupled plasma (ICP) interference check sample results, and sample analytical result quantitation.

Section 2.0 discusses the results of the inorganic data validation, and Section 3.0 presents an overall assessment of the data. The attachment to this memorandum contains PDC's summary of analytical results as well as START's handwritten data qualifications where warranted.

2.0 INORGANIC DATA VALIDATION RESULTS

The results of START's inorganic data validation are summarized below in terms of the QC parameters reviewed. The following data qualifiers are applied to the sample analytical results where warranted (see the attachment).

- J - The analyte was detected. The reported numerical value is considered estimated for QC reasons.
- U - The analyte was not detected. The reported numerical value is the sample quantitation limit.

2.1 HOLDING TIMES

Samples were analyzed for metals within the holding time limits of (1) 28 days for mercury and (2) 6 months for all other metals.

2.2 INITIAL AND CONTINUING CALIBRATIONS

All initial and continuing calibration results were within the QC limits of 90 to 110 percent recovery for metals other than mercury and 80 to 120 percent recovery for mercury.

2.3 BLANK RESULTS

Appropriate blanks, such as initial calibration, continuing calibration, and preparation blanks, were run with each analytical batch. Low concentrations (less than quantitation limits) of several of the metals were detected in some of the blanks. In most cases, the associated sample results do not require qualification because the samples contained no detectable concentrations of the metals or contained the metals at concentrations of more than five times the blank concentrations. The exceptions, including most selenium and mercury results for the TCLP extracts, one arsenic result for a TCLP extract, and one cadmium result for a water sample, were flagged "U" to indicate that the results are probably laboratory artifacts.

2.4 LCS RESULTS

An LCS was analyzed with each analytical batch. All LCS results for target analytes were within the QC limits specified by the laboratory.

2.5 MS/MSD RESULTS

MS/MSD samples were analyzed as required using samples T-1 Sludge and T-1 Water. The sludge/sediment sample total metal MS/MSD contained lead and zinc at much higher concentrations than the spike. The sludge/sediment sample TCLP metal MS/MSD contained only lead at a much higher concentration than the spike. The water sample total metal MS/MSD contained boron at a much higher concentration than the spike. MS/MSD results for these metals are therefore not usable. No qualifications are warranted for these data gaps. All other MS/MSD results for target analytes were within the laboratory-specified QC limits.

2.6 ICP INTERFERENCE CHECK SAMPLE RESULTS

ICP interference check sample analyses were performed as required.

2.7 SAMPLE ANALYTICAL RESULT QUANTITATION

Calculations were spot-checked and found to be correct, including correction of total concentration results for solid samples to dry weight. Some results were less than the sample quantitation limit, which corresponds to the lowest calibration standard, but were above the sample detection limit. PDC flagged these results as "B." These flags were changed to "J" to indicate that these extrapolations are estimated.

3.0 OVERALL ASSESSMENT OF DATA

Overall, the sample analytical data generated by PDC are acceptable for use as qualified.

ATTACHMENT

PDC SUMMARY OF SAMPLE ANALYTICAL RESULTS

(61 Sheets)

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-1 **Client ID:** T-1 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5023 **Volume:** 50 **Percent Moisture:** 77.1

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	5.7	17.4	5.7	U	10	ICPST	5/22/02	15:47
Barium	**493.41**	**1.7**	**43.5**	**170**		**10**	**ICPST**	**5/22/02**	**15:47**
Beryllium	**313.04**	**1.5**	**2.2**	**50.6**		**10**	**ICPST**	**5/22/02**	**15:47**
Boron	**249.68**	**11.0**	**43.5**	**334**		**10**	**ICPST**	**5/22/02**	**15:47**
Cadmium	**226.50**	**2.7**	**43.5**	**191**		**10**	**ICPST**	**5/22/02**	**15:47**
Chromium	**267.72**	**2.2**	**43.5**	**115**		**10**	**ICPST**	**5/22/02**	**15:47**
Cobalt	**228.62**	**4.4**	**8.7**	**29.7**		**10**	**ICPST**	**5/22/02**	**15:47**
Lead	**220.35**	**5.7**	**26.1**	**15300**		**10**	**ICPST**	**5/22/02**	**15:47**
Manganese	**257.61**	**1.7**	**43.5**	**4250**		**10**	**ICPST**	**5/22/02**	**15:47**
Nickel	**231.60**	**4.3**	**43.5**	**456**		**10**	**ICPST**	**5/22/02**	**15:47**
Selenium	**196.03**	**13.0**	**21.7**	**32.0**		**10**	**ICPST**	**5/22/02**	**15:47**
Silver	**328.07**	**4.8**	**17.4**	**11.4**	BJ	**10**	**ICPST**	**5/22/02**	**15:47**
Zinc	**206.2**	**3.8**	**174**	**152000**		**10**	**ICPST**	**5/22/02**	**15:47**

1+VE

5 mg/g?

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

000012

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-2 **Client ID:** T-2 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.4920 **Volume:** 50 **Percent Moisture:** 65.3

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	3.8	11.7	5.2	~~J~~	10	ICPST	5/22/02	15:39
Barium	493.41	1.1	29.3	118		10	ICPST	5/22/02	15:39
Beryllium	313.04	1.0	1.5	89.1		10	ICPST	5/22/02	15:39
Boron	249.68	7.4	29.3	356		10	ICPST	5/22/02	15:39
Cadmium	226.50	1.8	29.3	105		10	ICPST	5/22/02	15:39
Chromium	267.72	1.5	29.3	93.4		10	ICPST	5/22/02	15:39
Cobalt	228.62	2.9	5.9	34.5		10	ICPST	5/22/02	15:39
Lead	220.35	3.8	17.6	9310		10	ICPST	5/22/02	15:39
Manganese	257.61	1.1	29.3	4610		10	ICPST	5/22/02	15:39
Nickel	231.60	2.9	29.3	341		10	ICPST	5/22/02	15:39
Selenium	196.03	8.8	14.6	23.4		10	ICPST	5/22/02	15:39
Silver	328.07	3.2	11.7	9.3	~~J~~	10	ICPST	5/22/02	15:39
Zinc	206.2	2.6	117	134000		10	ICPST	5/22/02	15:39

HJE
5 May 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-3 **Client ID:** T-3 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5012 **Volume:** 50 **Percent Moisture:** 88.9

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.04**	**11.7**	**36.0**	**18.7**	BJ	**10**	**ICPST**	**5/22/02**	**16:39**
Barium	**493.41**	**3.5**	**89.9**	**229**		**10**	**ICPST**	**5/22/02**	**16:39**
Beryllium	313.04	3.1	4.5	3.1	U	10	ICPST	5/22/02	16:39
Boron	**249.68**	**22.8**	**89.9**	**168**		**10**	**ICPST**	**5/22/02**	**16:39**
Cadmium	**226.50**	**5.6**	**89.9**	**191**		**10**	**ICPST**	**5/22/02**	**16:39**
Chromium	**267.72**	**4.6**	**89.9**	**125**		**10**	**ICPST**	**5/22/02**	**16:39**
Cobalt	228.62	9.0	18.0	9.0	U	10	ICPST	5/22/02	16:39
Lead	**220.35**	**11.7**	**53.9**	**6340**		**10**	**ICPST**	**5/22/02**	**16:39**
Manganese	**257.61**	**3.4**	**89.9**	**1140**		**10**	**ICPST**	**5/22/02**	**16:39**
Nickel	**231.60**	**8.8**	**89.9**	**164**		**10**	**ICPST**	**5/22/02**	**16:39**
Selenium	**196.03**	**27.0**	**44.9**	**308**		**10**	**ICPST**	**5/22/02**	**16:39**
Silver	328.07	9.9	36.0	9.9	U	10	ICPST	5/22/02	16:39
Zinc	**206.2**	**7.9**	**360**	**49000**		**10**	**ICPST**	**5/22/02**	**16:39**

HUE

S May 02

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-4 **Client ID:** P-1 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5028 **Volume:** 50 **Percent Moisture:** 63.1

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	3.5	10.8	15.4		10	ICPST	5/22/02	16:48
Barium	493.41	1.1	27.0	132		10	ICPST	5/22/02	16:48
Beryllium	313.04	0.92	1.4	22.7		10	ICPST	5/22/02	16:48
Boron	249.68	6.9	27.0	313		10	ICPST	5/22/02	16:48
Cadmium	226.50	1.7	27.0	421		10	ICPST	5/22/02	16:48
Chromium	267.72	1.4	27.0	128		10	ICPST	5/22/02	16:48
Cobalt	228.62	2.7	5.4	18.7		10	ICPST	5/22/02	16:48
Lead	220.35	3.5	16.2	13400		10	ICPST	5/22/02	16:48
Manganese	257.61	1.0	27.0	2440		10	ICPST	5/22/02	16:48
Nickel	231.60	2.6	27.0	439		10	ICPST	5/22/02	16:48
Selenium	196.03	8.1	13.5	42.9		10	ICPST	5/22/02	16:48
Silver	328.07	3.0	10.8	6.7	B	10	ICPST	5/22/02	16:48
Zinc	206.2	2.4	108	101000		10	ICPST	5/22/02	16:48

HVF
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-5 **Client ID:** P-1 DUP SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5046 **Volume:** 50 **Percent Moisture:** 79.2

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	6.2	19.1	17.5	BJ	10	ICPST	5/22/02	16:53
Barium	493.41	1.9	47.6	165		10	ICPST	5/22/02	16:53
Beryllium	313.04	1.6	2.4	17.8		10	ICPST	5/22/02	16:53
Boron	249.68	12.1	47.6	277		10	ICPST	5/22/02	16:53
Cadmium	226.50	3.0	47.6	751		10	ICPST	5/22/02	16:53
Chromium	267.72	2.4	47.6	269		10	ICPST	5/22/02	16:53
Cobalt	228.62	4.8	9.5	13.8		10	ICPST	5/22/02	16:53
Lead	220.35	6.2	28.6	18700		10	ICPST	5/22/02	16:53
Manganese	257.61	1.8	47.6	2710		10	ICPST	5/22/02	16:53
Nickel	231.60	4.7	47.6	503		10	ICPST	5/22/02	16:53
Selenium	196.03	14.3	23.8	118		10	ICPST	5/22/02	16:53
Silver	328.07	5.2	19.1	18.1	BJ	10	ICPST	5/22/02	16:53
Zinc	206.2	4.2	191	121000		10	ICPST	5/22/02	16:53

HVE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-6 **Client ID:** D-1 SEDIMENT

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5069 **Volume:** 50 **Percent Moisture:** 66.3

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	3.8	11.7	26.8		10	ICPST	5/22/02	17:00
Barium	493.41	1.1	29.3	140		10	ICPST	5/22/02	17:00
Beryllium	313.04	1.0	1.5	2.5		10	ICPST	5/22/02	17:00
Boron	249.68	7.4	29.3	123		10	ICPST	5/22/02	17:00
Cadmium	226.50	1.8	29.3	72.2		10	ICPST	5/22/02	17:00
Chromium	267.72	1.5	29.3	515		10	ICPST	5/22/02	17:00
Cobalt	228.62	2.9	5.9	5.9		10	ICPST	5/22/02	17:00
Lead	220.35	3.8	17.6	7110		10	ICPST	5/22/02	17:00
Manganese	257.61	1.1	29.3	700		10	ICPST	5/22/02	17:00
Nickel	231.60	2.9	29.3	222		10	ICPST	5/22/02	17:00
Selenium	196.03	8.8	14.6	62.3		10	ICPST	5/22/02	17:00
Silver	328.07	3.2	11.7	11.3	BJ	10	ICPST	5/22/02	17:00
Zinc	206.2	2.6	117	54500		10	ICPST	5/22/02	17:00

HUF
5 Jumpers

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-7 **Client ID:** S-1

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.4929 **Volume:** 50 **Percent Moisture:** 11.5

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.5	4.6	3.6	BJ	10	ICPST	5/22/02	17:07
Barium	493.41	0.45	11.5	53.0		10	ICPST	5/22/02	17:07
Beryllium	313.04	0.39	0.57	21.2		10	ICPST	5/22/02	17:07
Boron	249.68	2.9	11.5	83.4		10	ICPST	5/22/02	17:07
Cadmium	226.50	0.71	11.5	15.1		10	ICPST	5/22/02	17:07
Chromium	267.72	0.59	11.5	234		10	ICPST	5/22/02	17:07
Cobalt	228.62	1.2	2.3	20.4		10	ICPST	5/22/02	17:07
Lead	220.35	1.5	6.9	4190		10	ICPST	5/22/02	17:07
Manganese	257.61	0.44	11.5	2830		10	ICPST	5/22/02	17:07
Nickel	231.60	1.1	11.5	2680		10	ICPST	5/22/02	17:07
Selenium	196.03	3.4	5.7	19.7		10	ICPST	5/22/02	17:07
Silver	328.07	1.3	4.6	14.4		10	ICPST	5/22/02	17:07
Zinc	206.2	1.0	45.9	69400		10	ICPST	5/22/02	17:07

HVE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results SDG: 02052505

Lab Sample ID: 02052505-8 **Client ID:** BH-1

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5003 **Volume:** 50 **Percent Moisture:** 27.8

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.8	5.5	1.8	U	10	ICPST	5/22/02	17:21
Barium	**493.41**	**0.54**	**13.8**	**22.2**		**10**	**ICPST**	**5/22/02**	**17:21**
Beryllium	**313.04**	**0.47**	**0.69**	**14.6**		**10**	**ICPST**	**5/22/02**	**17:21**
Boron	**249.68**	**3.5**	**13.8**	**90.2**		**10**	**ICPST**	**5/22/02**	**17:21**
Cadmium	**226.50**	**0.86**	**13.8**	**107**		**10**	**ICPST**	**5/22/02**	**17:21**
Chromium	**267.72**	**0.71**	**13.8**	**73.1**		**10**	**ICPST**	**5/22/02**	**17:21**
Cobalt	**228.62**	**1.4**	**2.8**	**4.0**		**10**	**ICPST**	**5/22/02**	**17:21**
Lead	**220.35**	**1.8**	**8.3**	**14600**		**10**	**ICPST**	**5/22/02**	**17:21**
Manganese	**257.61**	**0.53**	**13.8**	**433**		**10**	**ICPST**	**5/22/02**	**17:21**
Nickel	**231.60**	**1.4**	**13.8**	**80.5**		**10**	**ICPST**	**5/22/02**	**17:21**
Selenium	**196.03**	**4.2**	**6.9**	**26.6**		**10**	**ICPST**	**5/22/02**	**17:21**
Silver	**328.07**	**1.5**	**5.5**	**10.1**		**10**	**ICPST**	**5/22/02**	**17:21**

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results SDG: 02052505

Lab Sample ID: 02052505-8ZN **Client ID:** BH-1

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.5003 **Volume:** 50 **Percent Moisture:** 27.8

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Zinc	**206.2**	**12.2**	**554**	**605000**		**100**	**ICPST**	**5/22/02**	**17:30**

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-9 **Client ID:** S-2

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.4948 **Volume:** 50 **Percent Moisture:** 0.89

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.3	4.1	3.5	BJ	10	ICPST	5/22/02	17:40
Barium	493.41	0.40	10.2	212		10	ICPST	5/22/02	17:40
Beryllium	313.04	0.35	0.51	134		10	ICPST	5/22/02	17:40
Boron	249.68	2.6	10.2	540		10	ICPST	5/22/02	17:40
Cadmium	226.50	0.63	10.2	10.7		10	ICPST	5/22/02	17:40
Chromium	267.72	0.52	10.2	138		10	ICPST	5/22/02	17:40
Cobalt	228.62	1.0	2.0	70.4		10	ICPST	5/22/02	17:40
Lead	220.35	1.3	6.1	2840		10	ICPST	5/22/02	17:40
Manganese	257.61	0.39	10.2	7520		10	ICPST	5/22/02	17:40
Nickel	231.60	1.0	10.2	539		10	ICPST	5/22/02	17:40
Selenium	196.03	3.1	5.1	8.2		10	ICPST	5/22/02	17:40
Silver	328.07	1.1	4.1	1.6	BJ	10	ICPST	5/22/02	17:40
Zinc	206.2	0.90	40.8	91600		10	ICPST	5/22/02	17:40

HVE
5Jun02

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-1 **Client ID:** T-1 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.601 **Volume:** 100 **Percent Moisture:** 77.1

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.040	0.15	0.77		1	CVAA	5/22/02	11:03

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-2 **Client ID:** T-2 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.611 **Volume:** 100 **Percent Moisture:** 65.3

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.026	0.094	0.33		1	CVAA	5/22/02	11:11

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-3 **Client ID:** T-3 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.627 **Volume:** 100 **Percent Moisture:** 88.9

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.079	0.29	1.4		1	CVAA	5/22/02	11:14

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-4 **Client ID:** P-1 SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.603 **Volume:** 100 **Percent Moisture:** 63.1

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.025	0.090	1.4		1	CVAA	5/22/02	11:17

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-5 **Client ID:** P-1 DUP SLUDGE

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.627 **Volume:** 100 **Percent Moisture:** 79.2

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.042	0.15	1.9		1	CVAA	5/22/02	11:20

Comments:

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-6 **Client ID:** D-1 SEDIMENT

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.628 **Volume:** 100 **Percent Moisture:** 66.3

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.026	0.095	1.2		1	CVAA	5/22/02	11:22

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-7 **Client ID:** S-1

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.615 **Volume:** 100 **Percent Moisture:** 11.5

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.010	0.037	0.057		1	CVAA	5/22/02	11:31

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-8 **Client ID:** BH-1

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

Weight: 0.631 **Volume:** 100 **Percent Moisture:** 27.8

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.012	0.044	0.87		1	CVAA	5/22/02	11:34

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

ie Results **SDG:** 02052505

mple ID: 02052505-9 **Client ID:** S-2

Soil **Units:** mg/kg **Prep Date:** 5/22/02 **Prep Batch:** 1307H

0.607 **Volume:** 100 **Percent Moisture:** 0.89

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.0091	0.033	0.0091	U	1	CVAA	5/22/02	11:36

nts:

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form I Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-1 **Client ID:** T-1 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	7.2	U	5.55	ICPST	5/22/02	11:54
Barium	**493.41**	**2.2**	**1110**	**1430**		**5.55**	**ICPST**	**5/22/02**	**11:54**
Cadmium	**226.50**	**1.7**	**11.1**	**2980**		**5.55**	**ICPST**	**5/22/02**	**11:54**
Chromium	267.72	2.8	22.2	2.8	U	5.55	ICPST	5/22/02	11:54
Lead	**220.35**	**7.3**	**55.5**	**108000**		**5.55**	**ICPST**	**5/22/02**	**11:54**
Selenium	**196.03**	**16.4**	**55.5**	~~25.0~~	~~B~~ U	**5.55**	**ICPST**	**5/22/02**	**11:54**
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	11:54

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5 Jun 02

omments:

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U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

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TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-2 **Client ID:** T-2 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	7.2	U	5.55	ICPST	5/22/02	12:52
Barium	**493.41**	**2.2**	**1110**	**1050**	**BJ**	**5.55**	**ICPST**	**5/22/02**	**12:52**
Cadmium	**226.50**	**1.7**	**11.1**	**1690**		**5.55**	**ICPST**	**5/22/02**	**12:52**
Chromium	**267.72**	**2.8**	**22.2**	**11.0**	**BJ**	**5.55**	**ICPST**	**5/22/02**	**12:52**
Lead	**220.35**	**7.3**	**55.5**	**76900**		**5.55**	**ICPST**	**5/22/02**	**12:52**
Selenium	**196.03**	**16.4**	**55.5**	~~30.0~~	~~B~~ U	**5.55**	**ICPST**	**5/22/02**	**12:52**
Silver	328.07	6.0	11.1	6 0	U	5.55	ICPST	5/22/02	12:52

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5 Junor

Comments

5 02 3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-3 **Client ID:** T-3 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	22.9		5.55	ICPST	5/22/02	13:21
Barium	493.41	2.2	1110	2150		5.55	ICPST	5/22/02	13:21
Cadmium	226.50	1.7	11.1	484		5.55	ICPST	5/22/02	13:21
Chromium	267.72	2.8	22.2	41.9		5.55	ICPST	5/22/02	13:21
Lead	220.35	7.3	55.5	19100		5.55	ICPST	5/22/02	13:21
Selenium	196.03	16.4	55.5	~~31.9~~	~~B~~	5.55	ICPST	5/22/02	13:21
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	13:21

HUG
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form I Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-5 **Client ID:** P-1 DUP SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	7.2	U	5.55	ICPST	5/22/02	13:31
Barium	**493.41**	**2.2**	**1110**	**1470**		**5.55**	**ICPST**	**5/22/02**	**13:31**
Cadmium	**226.50**	**1.7**	**11.1**	**6720**		**5.55**	**ICPST**	**5/22/02**	**13:31**
Chromium	**267.72**	**2.8**	**22.2**	**29.3**		**5.55**	**ICPST**	**5/22/02**	**13:31**
Lead	**220.35**	**7.3**	**55.5**	**110000**		**5.55**	**ICPST**	**5/22/02**	**13:31**
Selenium	**196.03**	**16.4**	**55.5**	~~27.3~~	~~B~~ U	**5.55**	**ICPST**	**5/22/02**	**13:31**
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	13:31

1HUE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-4 **Client ID:** P-1 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	7.2	U	5.55	ICPST	5/22/02	13:26
Barium	**493.41**	**2.2**	**1110**	**1280**		**5.55**	**ICPST**	**5/22/02**	**13:26**
Cadmium	**226.50**	**1.7**	**11.1**	**6570**		**5.55**	**ICPST**	**5/22/02**	**13:26**
Chromium	**267.72**	**2.8**	**22.2**	**32.0**		**5.55**	**ICPST**	**5/22/02**	**13:26**
Lead	**220.35**	**7.3**	**55.5**	**97700**		**5.55**	**ICPST**	**5/22/02**	**13:26**
Selenium	**196.03**	**16.4**	**55.5**	~~**25.8**~~	~~**B**~~	**5.55**	**ICPST**	**5/22/02**	**13:26**
Silver	**328.07**	**6.0**	**11.1**	**6.1**	~~**B**~~	**5.55**	**ICPST**	**5/22/02**	**13:26**

HJG
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-6 **Client ID:** D-1 SEDIMENT

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.04**	**7.2**	**22.2**	**11.5**	**BJ**	**5.55**	**ICPST**	**5/22/02**	**13:36**
Barium	**493.41**	**2.2**	**1110**	**1130**		**5.55**	**ICPST**	**5/22/02**	**13:36**
Cadmium	**226.50**	**1.7**	**11.1**	**99.4**		**5.55**	**ICPST**	**5/22/02**	**13:36**
Chromium	267.72	2.8	22.2	2.8	U	5.55	ICPST	5/22/02	13:36
Lead	**220.35**	**7.3**	**55.5**	**11200**		**5.55**	**ICPST**	**5/22/02**	**13:36**
Selenium	196.03	16.4	55.5	16.4	U	5.55	ICPST	5/22/02	13:36
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	13:36

6.9.02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-7 **Client ID:** S-1

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	7.2	U	5.55	ICPST	5/22/02	13:48
Barium	**493.41**	**2.2**	**1110**	**504**	~~B~~	**5.55**	**ICPST**	**5/22/02**	**13:48**
Cadmium	**226.50**	**1.7**	**11.1**	**170**		**5.55**	**ICPST**	**5/22/02**	**13:48**
Chromium	267.72	2.8	22.2	2.8	U	5.55	ICPST	5/22/02	13:48
Lead	**220.35**	**7.3**	**55.5**	**11200**		**5.55**	**ICPST**	**5/22/02**	**13:48**
Selenium	**196.03**	**16.4**	**55.5**	**71.7**		**5.55**	**ICPST**	**5/22/02**	**13:48**
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	13:48

HOE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-8 **Client ID:** BH-1

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	7.2	22.2	7.2	U	5.55	ICPST	5/22/02	13:59
Barium	**493.41**	**2.2**	**1110**	**156**	~~B~~ J	**5.55**	**ICPST**	**5/22/02**	**13:59**
Cadmium	**226.50**	**1.7**	**11.1**	**742**		**5.55**	**ICPST**	**5/22/02**	**13:59**
Chromium	267.72	2.8	22.2	2.8	U	5.55	ICPST	5/22/02	13:59
Lead	**220.35**	**7.3**	**55.5**	**79400**		**5.55**	**ICPST**	**5/22/02**	**13:59**
Selenium	**196.03**	**16.4**	**55.5**	**51.3**	~~B~~	**5.55**	**ICPST**	**5/22/02**	**13:59**
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	13:59

HOE
5 Jan 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-9 **Client ID:** S-2

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** R69547

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.04**	**7.2**	**22.2**	**7.6**	~~B~~ U	**5.55**	**ICPST**	**5/22/02**	**14:17**
Barium	**493.41**	**2.2**	**1110**	**1630**		**5.55**	**ICPST**	**5/22/02**	**14:17**
Cadmium	**226.50**	**1.7**	**11.1**	**17.6**		**5.55**	**ICPST**	**5/22/02**	**14:17**
Chromium	**267.72**	**2.8**	**22.2**	**4.3**	~~B~~ J	**5.55**	**ICPST**	**5/22/02**	**14:17**
Lead	**220.35**	**7.3**	**55.5**	**852**		**5.55**	**ICPST**	**5/22/02**	**14:17**
Selenium	196.03	16.4	55.5	16.4	U	5.55	ICPST	5/22/02	14:17
Silver	328.07	6.0	11.1	6.0	U	5.55	ICPST	5/22/02	14:17

HOE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-1 **Client ID:** T-1 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.10	B U	1	CVAA	5/22/02	14:16

HVE
5Jun-02

Comments:

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-2 **Client ID:** T-2 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.079	~~B~~ U	1	CVAA	5/22/02	14:29

HUF

5 Jun 02

Comments:

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-3 **Client ID:** T-3 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.076	~~B~~ U	1	CVAA	5/22/02	14:32

HUF
5 Jun 02

Comments:

5.02.3 *Form I Equivalent*

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-4 **Client ID:** P-1 SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.097	B/U	1	CVAA	5/22/02	14:35

HUE
5 Jun 02

Comments:

5 02.3

Form 1 Equivalent

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-5 **Client ID:** P-1 DUP SLUDGE

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.087	~~B~~U	1	CVAA	5/22/02	14:37

HUE
5 Jun 02

Comments:

5.02.3 *Form I Equivalent*

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-6 **Client ID:** D-1 SEDIMENT

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.055	U	1	CVAA	5/22/02	14:40

Comments:

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-7 **Client ID:** S-1

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.055	U	1	CVAA	5/22/02	14:43

Comments:

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-8 **Client ID:** BH-1

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	3.1		1	CVAA	5/22/02	14:46

omments:

02.3 *Form 1 Equivalent*

TCLP

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-9 **Client ID:** S-2

Matrix: Water **Units:** ug/L **Prep Date:** 5/22/02 **Prep Batch:** 1308H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.055	U	1	CVAA	5/22/02	14:48

Comments:

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-1 **Client ID:** T-1 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.4	22.2	1.4	U	1.11	ICPST	5/22/02	10:03
Barium	**493.41**	**0.43**	**11.1**	**74.2**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	10:03
Boron	**249.68**	**2.8**	**111**	**8930**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Cadmium	**226.50**	**0.33**	**2.2**	**7.8**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Chromium	267.72	0.56	4.4	0.56	U	1.11	ICPST	5/22/02	10:03
Copper	**324.75**	**0.30**	**11.1**	**236**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Lead	**220.35**	**1.5**	**11.1**	**69.7**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Manganese	**257.61**	**0.42**	**11.1**	**71.3**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Nickel	**231.60**	**1.1**	**11.1**	**23.9**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Selenium	**196.03**	**3.3**	**11.1**	**14.7**		**1.11**	**ICPST**	**5/22/02**	**10:03**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	10:03
Zinc	**206.2**	**0.98**	**11.1**	**907**		**1.11**	**ICPST**	**5/22/02**	**10:03**

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-2 **Client ID:** T-2 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.4	22.2	1.4	U	1.11	ICPST	5/22/02	9:42
Barium	**493.41**	**0.43**	**11.1**	**87.7**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	9:42
Boron	**249.68**	**2.8**	**111**	**10500**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Cadmium	**226.50**	**0.33**	**2.2**	**8.6**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Chromium	267.72	0.56	4.4	0.56	U	1.11	ICPST	5/22/02	9:42
Copper	**324.75**	**0.30**	**11.1**	**105**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Lead	**220.35**	**1.5**	**11.1**	**75.8**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Manganese	**257.61**	**0.42**	**11.1**	**84.3**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Nickel	**231.60**	**1.1**	**11.1**	**12.8**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Selenium	**196.03**	**3.3**	**11.1**	**16.5**		**1.11**	**ICPST**	**5/22/02**	**9:42**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	9:42
Zinc	**206.2**	**0.98**	**11.1**	**958**		**1.11**	**ICPST**	**5/22/02**	**9:42**

Comments:

5 02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-3 **Client ID:** T-3 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.4	22.2	1.4	U	1.11	ICPST	5/22/02	9:48
Barium	**493.41**	**0.43**	**11.1**	**34.9**		**1.11**	**ICPST**	**5/22/02**	**9:48**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	9:48
Boron	**249.68**	**2.8**	**111**	**8480**		**1.11**	**ICPST**	**5/22/02**	**9:48**
Cadmium	**226.50**	**0.33**	**2.2**	**0.98**	~~B~~ U	**1.11**	**ICPST**	**5/22/02**	**9:48**
Chromium	267.72	0.56	4.4	0.56	U	1.11	ICPST	5/22/02	9:48
Copper	**324.75**	**0.30**	**11.1**	**29.1**		**1.11**	**ICPST**	**5/22/02**	**9:48**
Lead	**220.35**	**1.5**	**11.1**	**14.6**		**1.11**	**ICPST**	**5/22/02**	**9:48**
Manganese	**257.61**	**0.42**	**11.1**	**6.5**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**9:48**
Nickel	**231.60**	**1.1**	**11.1**	**5.8**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**9:48**
Selenium	**196.03**	**3.3**	**11.1**	**39.7**		**1.11**	**ICPST**	**5/22/02**	**9:48**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	9:48
Zinc	**206.2**	**0.98**	**11.1**	**119**		**1.11**	**ICPST**	**5/22/02**	**9:48**

HUE
5Jun02

Comments:

5 02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-4 **Client ID:** P-1 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.4	22.2	1.4	U	1.11	ICPST	5/22/02	9:56
Barium	**493.41**	**0.43**	**11.1**	**67.3**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	9:56
Boron	**249.68**	**2.8**	**111**	**8730**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Cadmium	**226.50**	**0.33**	**2.2**	**7.0**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Chromium	267.72	0.56	4.4	0.56	U	1.11	ICPST	5/22/02	9:56
Copper	**324.75**	**0.30**	**11.1**	**88.0**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Lead	**220.35**	**1.5**	**11.1**	**85.7**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Manganese	**257.61**	**0.42**	**11.1**	**47.3**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Nickel	**231.60**	**1.1**	**11.1**	**8.7**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**9:56**
Selenium	**196.03**	**3.3**	**11.1**	**17.1**		**1.11**	**ICPST**	**5/22/02**	**9:56**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	9:56
Zinc	**206.2**	**0.98**	**11.1**	**470**		**1.11**	**ICPST**	**5/22/02**	**9:56**

HSE
5Jun02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-5 **Client ID:** P-1 DUP WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	189.04	1.4	22.2	1.4	U	1.11	ICPST	5/22/02	11:04
Barium	**493.41**	**0.43**	**11.1**	**68.0**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	11:04
Boron	**249.68**	**2.8**	**111**	**8770**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Cadmium	**226.50**	**0.33**	**2.2**	**7.2**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Chromium	267.72	0.56	4.4	0.56	U	1.11	ICPST	5/22/02	11:04
Copper	**324.75**	**0.30**	**11.1**	**89.4**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Lead	**220.35**	**1.5**	**11.1**	**84.1**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Manganese	**257.61**	**0.42**	**11.1**	**46.8**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Nickel	**231.60**	**1.1**	**11.1**	**8.8**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**11:04**
Selenium	**196.03**	**3.3**	**11.1**	**18.0**		**1.11**	**ICPST**	**5/22/02**	**11:04**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	11:04
Zinc	**206.2**	**0.98**	**11.1**	**468**		**1.11**	**ICPST**	**5/22/02**	**11:04**

HVE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-6 **Client ID:** D-1 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.04**	**1.4**	**22.2**	**5.5**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**11:12**
Barium	**493.41**	**0.43**	**11.1**	**18.2**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	11:12
Boron	**249.68**	**2.8**	**111**	**3340**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Cadmium	**226.50**	**0.33**	**2.2**	**3.1**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Chromium	**267.72**	**0.56**	**4.4**	**7.2**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Copper	**324.75**	**0.30**	**11.1**	**406**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Lead	**220.35**	**1.5**	**11.1**	**150**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Manganese	**257.61**	**0.42**	**11.1**	**26.9**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Nickel	**231.60**	**1.1**	**11.1**	**4.7**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**11:12**
Selenium	**196.03**	**3.3**	**11.1**	**29.4**		**1.11**	**ICPST**	**5/22/02**	**11:12**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	11:12
Zinc	**206.2**	**0.98**	**11.1**	**1150**		**1.11**	**ICPST**	**5/22/02**	**11:12**

HVE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507-7 **Client ID:** D-2 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** R69632

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.04**	**1.4**	**22.2**	**8.4**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**11:18**
Barium	**493.41**	**0.43**	**11.1**	**21.4**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Beryllium	313.04	0.38	5.6	0.38	U	1.11	ICPST	5/22/02	11:18
Boron	**249.68**	**2.8**	**111**	**5410**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Cadmium	**226.50**	**0.33**	**2.2**	**2.3**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Chromium	**267.72**	**0.56**	**4.4**	**15.9**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Copper	**324.75**	**0.30**	**11.1**	**704**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Lead	**220.35**	**1.5**	**11.1**	**248**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Manganese	**257.61**	**0.42**	**11.1**	**33.2**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Nickel	**231.60**	**1.1**	**11.1**	**7.4**	~~B~~ J	**1.11**	**ICPST**	**5/22/02**	**11:18**
Selenium	**196.03**	**3.3**	**11.1**	**53.8**		**1.11**	**ICPST**	**5/22/02**	**11:18**
Silver	328.07	1.2	11.1	1.2	U	1.11	ICPST	5/22/02	11:18
Zinc	**206.2**	**0.98**	**11.1**	**1360**		**1.11**	**ICPST**	**5/22/02**	**11:18**

HOE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*1 **Client ID:** T-1 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.062	BJ	1	CVAA	5/23/02	12:01

HUG
Samps

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*2 **Client ID:** T-2 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.11	BJ	1	CVAA	5/23/02	12:09

HJF
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*3 **Client ID:** T-3 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.077	~~BJ~~	1	CVAA	5/23/02	12:12

HUE
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*4 **Client ID:** P-1 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.055	U	1	CVAA	5/23/02	12 15

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*5 **Client ID:** P-1 DUP WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.055	U	1	CVAA	5/23/02	12:23

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*6 **Client ID:** D-1 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.055	U	1	CVAA	5/23/02	12:26

Comments:

5.02.3

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form I Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052507

Lab Sample ID: 02052507*7 **Client ID:** D-2 WATER

Matrix: Water **Units:** ug/L **Prep Date:** 5/23/02 **Prep Batch:** 1310H

Weight: NA **Volume:** 25 **Percent Moisture:** NA

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.055	0.20	0.083	B	1	CVAA	5/23/02	12:28

HWG
5 Jun 02

Comments:

5.02.3

U Result is less than the IDL
B Result is between IDL and RL
E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Cover Page - Inorganic Analysis Data Package

SDG: 02052505

Client ID	Lab Sample ID:
S-1	02052505-7

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than conditions detailed above. Release of the data combined in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Elaine Kaufmann Name: Elaine Kaufmann

Date: 6/20/02 Title: Project Manager

PDC Laboratories, Inc.

Metals Data Reporting Form

Sample Results **SDG:** 02052505

Lab Sample ID: 02052505-7 **Client ID:** S-1

Matrix: Soil **Units:** mg/kg **Prep Date:** 5/21/02 **Prep Batch:** R69546

Weight: 0.4929 **Volume:** 50 **Percent Moisture:** 11.5

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Copper	324.75	3.1	573	157000		100	ICPST	6/17/02	13:04

Comments:

5.02.4

U Result is less than the IDL

B Result is between IDL and RL

E Serial dilution percent difference not within limits

Form 1 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Initial Calibration Verification Standard **SDG:** 02052505

Instrument: ICPST **Units:** ug/L

Chart Number: 617.ARC **Acceptable Range:** 90% - 110%

Standard Source: Inorganic Ventures **Standard ID:** TS4-11C

Element	WL/ Mass	True Conc	ICV 6/17/02 10:37 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Copper	324.754	4000.0	3992.51	99.8								

PDC Laboratories, Inc.

Metals Data Reporting Form

Continuing Calibration Verification **SDG:** 02052505

Instrument: ICPST **Units:** ug/L

Chart Number: 617.ARC **Acceptable Range:** 90% - 110%

Standard Source: Inorganic Ventures **Standard ID:** TS4-11C

Element	WL/ Mass	True Conc	CCV 6/17/02 12:12 PM Found	% Rec	CCV 6/17/02 1:33 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Copper	324.754	4000.0	4019.72	100.5	4038.65	101.0						

PDC Laboratories, Inc.

Metals Data Reporting Form

Initial Calibration Blank Results **SDG:** 02052505

Instrument: ICPST **Units:** ug/L

Chart Number: 617.ARC

Standard Source: NA **Standard ID:** NA

Element	WL/ Mass	Report Limit	ICB 6/17/02 10:49 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Copper	324.754	50	0.3	U								

U Result is less than the IDL.
B Result is between IDL and RL

Form 3 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Continuing Calibration Blank Result **SDG:** 02052505

Instrument: ICPST **Units:** ug/L

Chart Number: 617.ARC

Standard Source: NA **Standard ID:** NA

Element	WL/ Mass	Report Limit	CCB 6/17/02 12:16 PM Found	Q	CCB 6/17/02 1:39 PM Found	Q	Found	Q	Found	Q	Found	Q
Copper	324.754	50	0.3	U	0.3	U						

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Interference Check Standard A **SDG:** 02052505

Instrument: ICPST **Units:** ug/L

Chart Number: 617.ARC **Acceptable Range:** 0% - 0%

Standard Source: Solutions Plus **Standard ID:** TS4-11A

Element	WL/ Mass	Reporting Limit	True Conc	ICS-A 6/17/02 10:54 AM Found	Found	Found	Found	Found
Copper	324.754	50		-3				

U Result is less than the IDL
B Result is between IDL and RL

Form 4 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Interference Check Standard AB **SDG:** 02052505

Instrument: ICPST **Units:** ug/L

Chart Number: 617.ARC **Acceptable Range:** 80% - 120%

Standard Source: Solutions Plus **Standard ID:** TS4-11A

Element	WL/ Mass	True Conc	ICS-AB 6/17/02 11:06 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Copper	324.754	500	527.8	105.6								

5.02.4

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed

Form 4 Equivalent

PDC Laboratories, Inc.

Metals Data Reporting Form

Instrument Runlog **SDG:** 02052505

Instrument: ICPST **Chart Number:** 617.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		6/17/02	9:37
ZZZZZZ		6/17/02	9:43
ZZZZZZ		6/17/02	10:04
ZZZZZZ		6/17/02	10:34
ICV		6/17/02	10:37
ICB		6/17/02	10:49
ICS-A		6/17/02	10:54
ICS-AB		6/17/02	11:06
ZZZZZZ		6/17/02	11:17
ZZZZZZ		6/17/02	11:22
ZZZZZZ		6/17/02	11:27
ZZZZZZ		6/17/02	11:33
ZZZZZZ		6/17/02	11:38
ZZZZZZ		6/17/02	11:43
ZZZZZZ		6/17/02	11:49
ZZZZZZ		6/17/02	11:54
CCV		6/17/02	12:12
CCB		6/17/02	12:16
ZZZZZZ		6/17/02	12:20
ZZZZZZ		6/17/02	12:25
ZZZZZZ		6/17/02	12:31
ZZZZZZ		6/17/02	12:36
ZZZZZZ		6/17/02	12:41
ZZZZZZ		6/17/02	12:47
ZZZZZZ		6/17/02	12:52
ZZZZZZ		6/17/02	12:58
02052505-7	S-1	6/17/02	13:04
CCV		6/17/02	13:33
CCB		6/17/02	13:39
ZZZZZZ		6/17/02	14:14
ZZZZZZ		6/17/02	14:17
ZZZZZZ		6/17/02	14:23
ZZZZZZ		6/17/02	14:33
ZZZZZZ		6/17/02	14:39
ZZZZZZ		6/17/02	14:53
ZZZZZZ		6/17/02	14:56
ZZZZZZ		6/17/02	15:06
ZZZZZZ		6/17/02	15:18
ZZZZZZ		6/17/02	15:31

PDC Laboratories, Inc.

Metals Data Reporting Form

Instrument Runlog **SDG:** 02052505

Instrument: ICPST **Chart Number:** 617.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		6/17/02	15:36
ZZZZZZ		6/17/02	15:39

APPENDIX C

LIST OF WITNESSES

(One Page)

LIST OF WITNESSES

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